Claim

WHAT IS CLAIMED IS:

1. A multimode filter in an optical storage device for filtering an error signal and extracting a frequency signal, said multimode filter comprising:

a CLV mode filter for filtering said error signal and extracting a narrow bandwidth signal;

a CAV mode filter for filtering said error signal and extracting a wide bandwidth signal; and

a switch for selection of the filter between CLV and CAV mode filter.

2.The multimode filter as claimed in claim 1, wherein said CAV mode filter comprising:

a high pass filter for filtering said error signal and generating an intermediate signal ; and

a low pass filter that connects with said high pass filter for receiving and filtering said intermediate signal from the high pass filter.

3. The multimode filter as claimed in claim 2, wherein said high pass filter has a cutoff frequency of multiple times of 22.05KHz.

4. The multimode filter as claimed in claim 2, wherein said low pass filter has a cutoff frequency of multiple times of 55KHz.

5. The multimode filter as claimed in claim 1 , wherein said frequency signal has a center frequency of multiple times of 22.05KHz.

6. The multimode filter as claimed in claim 1 , wherein said error signal is a tracking error signal.

7. The multimode filter as claimed in claim 1, wherein said optical storage device is selected from the group consisting of CD-R, CD-RW, DVD-R, DVD-RW, DVD+RW, DVD-RAM.

8. An optical storage device having a multimode filter for filtering an error signal and extracting a frequency signal, said multimode filter comprising:

a CLV mode filter for filtering said error signal and extracting a narrow bandwidth signal;

a CAV mode filter for filtering said error signal and extracting a wide bandwidth signal; and

a switch for selection of the filter between CLV and CAV mode filter.

9. The multimode filter as claimed in claim 8, wherein said CAV mode filter comprising:

a high pass filter for filtering said error signal and generating an intermediate signal ; and

a low pass filter that connects with said high pass filter for receiving and filtering said intermediate signal from the high pass filter.

10. The multimode filter as claimed in claim 9, wherein said high pass filter has a cutoff frequency of multiple times of 22.05KHz.

11. The multimode filter as claimed in claim 9, wherein said low pass filter has a cutoff frequency of multiple times of 55KHz.

12. The multimode filter as claimed in claim 8 , wherein said frequency signal has a center frequency of multiple times of 22.05KHz.

13. The multimode filter as claimed in claim 8 , wherein said error signal is a tracking error signal.

14. The multimode filter as claimed in claim 8, wherein said optical storage device is selected from the group consisting of CD-R, CD-RW, DVD-R, DVD-RW, DVD+RW, DVD-RAM.

15. A multimode filtering method for filtering an error signal of an optical storage device, said multimode filtering method comprising:

inputting an error signal to a multimode filter;

setting the frequency domain of said multimode filter in accordance with the recording mode of said optical storage device; and

filtering said error signal and extracting a frequency signal.

16. The multimode filtering method as claimed in claim 15, wherein said multimode filter comprises a CLV and CAV mode filter.

17. The multimode filtering method as claimed in claim 16 , wherein said CLV mode filter has a center frequency of multiple times of 22.05KHz, and the CAV mode filter has cutoff frequencies of multiple times of 22.05KHz and 55KHz.

18. The multimode filtering method as claimed in claim 15, wherein said frequency signal has a center frequency of multiple times of 22.05KHz.

19. The multimode filter as claimed in claim 15 , wherein said error signal is a tracking error signal.

20. The multimode filter as claimed in claim 15, wherein said optical storage device is selected from the group consisting of CD-R, CD-RW, DVD-R, DVD-RW, DVD+RW, DVD-RAM.